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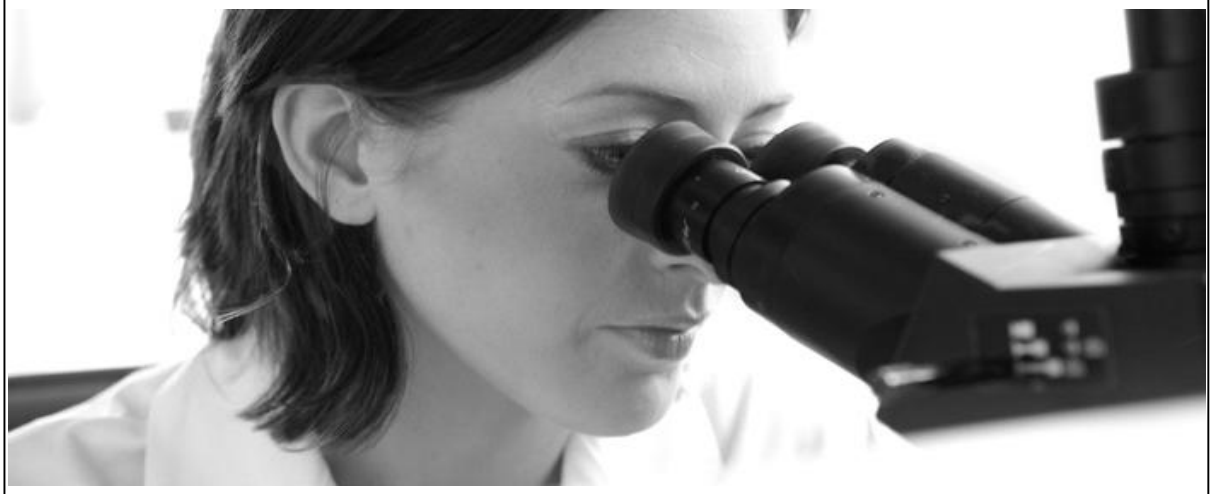

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RESEARCH ARTICLE

A RARE CASE OF *SPIROCERCA LUPI* INFECTION IN THE ANAL MUCOSA OF A DOG AND ITS SURGICAL MANAGEMENT

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ABSTRACT

A 7-month old non-descript male pet dog was presented with history of a reddish mass protruding through the anus, dyschezia, severe straining, passing of blood tinged stool and anorexia over a period of one week. At the beginning, one month before, the mass was noticeable only during defecation and this had grown gradually to attain the present persisting size. Physical examination of the dog's hind quarter revealed a bright red, irregular shaped non-ulcerating hard lump of about 4-5 cm in diameter with a protruding tip and superficially seated on the ventro-lateral surface of anal mucosa. Gentle palpation of growth resulted expulsion of one round worm through the opening present in the protruding tip. Treatment involved surgical excision of the growth under general anaesthesia and post operative care. The animal made an uneventful recovery with no sign of any of the preoperative complains in 90 days of follow-up. The parasites were morphologically identified as *Spirocerca lupi*. Rare occurrence of *S. lupi* infection at the unusual site of anal mucosa is discussed in the light of available literature.

INTRODUCTION

Spirocerca lupi is a spirurid nematode parasite which infects predominantly the canids. The parasite involves dung beetles as the intermediate host and a variety of paratenic hosts (birds, reptiles, rodents etc). Oesophagus, aorta and the stomach of dogs are the usual sites of predilection of the parasite which induces granulomatous reaction followed by development of fibrous nodule. In long standing cases nodules can undergo neoplastic transformation resulting in development of sarcoma and metastasis in lungs, lymph nodes etc. Rare occurrence of nodules in other anatomical sites such as skin, spinal cord, heart, respiratory system and rectum has been reported (Georgi *et al*., 1980; Garg *et al*., 1989; Smith and Knottenbelt, 1989; Manohar *et al*., 1999; Singh *et al*., 1999; Borthakur *et al*., 2006). The present communication records occurrence and successful surgical management of *Spirocerca lupi* induced nodular outgrowth located unusually in the anus of a dog.

MATERIALS AND METHODS

Case history: On 4th May, 2015 a 7 months old non-descript male pet dog weighing about 7 kg was presented at the District Veterinary Hospital, Jorhat, Assam. According to the owner, the dog had a pointed reddish mass protruding through the anus, dyschezia, incomplete and prolonged defecation with severe straining, passing of blood mixed scanty stool and anorexia over a period of one week. The mass at the beginning, one month before was noticeable during defecation only and this had been growing to the present protruding stage. Physical examination of the dog's hind quarters revealed presence of a bright red, pedunculated non-ulcerating lump of about 4-5 cm in diameter superficially seated on the ventral surface of the anal mucosa (Fig 1). The lump had a pointed projection which was seen protruding from the anus. The growth was partially blocking the passage for defecation. Gentle pressure on the growth resulted expulsion of one round worm through the opening present at the pointed projection. The dog was in good health with normal body temperature (100.5° F) but tense looking. The case was provisionally diagnosed as parasite modulated nodular growth and therefore surgical excision was suggested.

Surgical treatment: Next day, the animal in preoperative fasting was prepared for surgery by premedication with atropine sulphate (0.5 ml i/m) and sedation with xylazine (0.6 ml i/m) and ketamine (1.4 ml i/m). The animal was secured in right lateral recumbency and operation site was aseptically

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prepared. Local infiltration of analgesic around the base of the growth was done using 2% lignocaine hydrochloride. The growth was properly ligated with Catgut 1-0 and then incised out. Haemorrhage was controlled by additional catgut suture and administration of haemostatic (Botropose, 1 ml i/m). The site was dressed with antiseptic ointment (Betadine) and dusted with antibiotic powder (Neosporin). The owner was advised to maintain the dog on liquid diet for 2 days and on semisolid plain diet for another 2 days. Postoperative treatment included antiseptic dressing every alternate day, fluid therapy (DNS-5%, 250 ml i/v for 2 days), antibiotic (Intacef 250 mg i/m for 5 days), anti-inflammatory (Chymoral forte 1 tab b.i.d. for 10 days), antiparasitic (Neomac inj 0.5 ml s/c at 10 days interval for 3 occasions), laxative (milk of magnesia 5 ml mixed with water orally at night for 3 days) and vitamin (Polybion 2 ml i/v in drip for 2 days) supplementation.

Laboratory evaluation: Grasping of excised growth with a forceps caused expulsion of 6 more round worms (Fig 2). All the parasites were preserved in 10% formalin for species identification.

RESULTS AND DISCUSSION

Morphological examination of lactophenol cleared parasites revealed their identity as *Spirocerca lupi* (Fig 3 & Fig 4) consistent with the description provided elsewhere (Soulsby, 1982). Conforming to the previous reports (Rannen *et al*., 2004; Yas *et al*., 2013; Okanishi *et al*. 2013) the case was diagnosed as *Spirocerca lupi* induced nodular anal growth. Screening of published literature revealed reports of aberrant migration of developing larvae of the parasite and unusual localization of nodules in organs such as heart (Garg *et al*., 1989), lungs (Manohar *et al*., 1999), spinal cord (Smith and Knottenbelt, 1989), trachea (Borthakur *et al*., 2006), skin (Singh *et al*., 1999) and rectum (Georgi *et al*., 1980) with exhibition of site specific clinical symptoms. The present case added anal mucosa as another site for abnormal localization of *S. lupi* nodule in dog. Typical signs associated with usual development of nodule around oesophagus generally include regurgitation, vomition, dysphagia, odynophagia, coughing, excessive salivation and weight loss (Mazaki-Tovi *et al*., 2002; Mylonakis *et al*., 2006). The present case exhibited defecation related complains such as dyschezia, incomplete defecation and severe straining with partial obstruction of anal passage and anorexia.

Fig 1 Nodular growth in anal mucosa

Fig 2 Nodule with nematode parasites

Fig 3 Anterior end of *Spirocerca lupi* (X40)

Fig 4 Embryonated eggs of *S. lupi* (X40)

Medical management of spirocercosis include surgical procedure (Yas *et al*., 2013) and chemotherapy (Berry, 2000; Lefkaditis, 2002; Okanishi *et al*., 2013). Surgical treatment of spirocercosis, although successful, is very complicated when it develops in internal organs. In the present case surgery was simple due to localization of the nodule at a visible site and its accessibility. Surgery followed by administration of Ivermectin helped to prevent serious complications. The animal had an uneventful recovery with no recurrence of the growth and defecation complains in 96 days of post operative follow up observation.

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